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ABSTRACT

A project reviewed 54 commercially available multimedia products with literature as the subject matter, to determine what pedagogical approaches steered the design of literature software, and whether these were aligned with response-based views of literature teaching/learning. Findings indicated that the design of commercial products advocates an approach to literature that is more information-based than response-based. Specifically, commercial applications do not provide adequate support for discourse among students concerning the literary works they read, a central aspect of response-based practice. The project developed "The Beats," an open-ended "ToolBook" program which centers on the works of Jack Kerouac, Allen Ginsberg, William Burroughs, and Lawrence Ferlinghetti. It includes recorded readings, jazz music, period radio interviews, and databases of biographical and visual information, and was designed as a tool with which high school and community college students could explore personal and collaborative readings in a multimedia environment. Undergraduates (n=26) in a writing class at Hudson Valley Community College participated in the initial piloting of "The Beats." The teacher was experienced with computers, and specific assignments for the software were at his discretion. Preliminary data revealed that on-line collaborations in a literature-based multimedia environment are not only viable, but potentially powerful. Observations also suggest that the nature of these on-line responses and collaborations are qualitatively and quantitatively different from in-class discussions. (Contains one table and one figure and 25 references.) (NKA)

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Tools for Supporting Response-Based Literature Teaching and Learning

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The Multimedia and Literature Teaching and Learning Project at the University at Albany explores the potential roles of technology in literature teaching and learning. The Project's work is premised on a potential match between the features and capabilities of contemporary technologies and the goals, processes, and outcomes of response-based teaching and learning practices. We believe, for example, that the multimodal and communicative characteristics of current technologies can potentially encourage, support, and enhance the kinds of reflective and discoursal activity that is critical for full intellectual and aesthetic interchange with literature and the subsequent literacy and personal growth that can result. We are particularly interested in the potential roles into which multimedia can be cast when literature is the subject and practice around it is response-based. The project's activities have consequently centered on how multimedia influences students' interactions with literary texts in the classroom context.

Initially the project undertook an extensive review of commercially available multimedia products with literature as the subject matter (Swan & Meskill, 1995). The goal of these product reviews was to determine what pedagogical approaches steered the design of literature software, and whether these were aligned with, and therefore supportive of, response-based views of literature teaching and learning. Response-based criteria generated by teaching professionals were applied to these products by teachers in an attempt to determine what software characteristics were most supportive of and conducive to the development of students' understandings of the literature they read. Fifty-four products, a sample representative of what was available on the software market at the time, were extensively reviewed by teaching professionals. In the majority of cases, reviewers found that although materials tend to be technologically attractive and generally supportive of text-based pedagogies, they are not inherently supportive of teaching and learning of literature that is response-based. That is, where

products are quite often visually appealing and sophisticated in terms of information access, the design of most commercial products advocates an approach to literature that is more information-based than response-based. For example, in these products, meaning is typically reduced to a single interpretation and a single perspective by virtue of its visual 'residence' on the screen (e.g., meaning popping out of a passage at the click of a mouse). Meaning, in other words, becomes computer-generated, rather than student-generated. In addition to the prevalent information-based design approach, the single feature that we found lacking that would align commercial products with current pedagogical practice is communications facilities. Specifically, we found commercial applications do not provide adequate support for discourse among students concerning the literary works they read, a central aspect of response-based practice. What is described in this report is our attempt to build and field-test response-based multimedia tools that fill this void.

Response-Based Literature Teaching and Learning

Response-based theory values the processes of literary understanding and sees these as both personally and socially mediated (Langer, 1995a). Response-based literature teaching promotes students' higher order critical and creative thinking. Where traditional approaches to literature teaching champion the close readings of texts and "correct" interpretations and are thus information-oriented, response-based theorists regard readers as active meaning makers whose personal experiences affect their many and varied interpretations of literary works (Holland, 1975; Iser, 1978; Rosenblat, 1978, 1986). Literate thinkers, it is believed, do more than attempt to decode a single, sanctioned message of a literature selection. On the contrary, skilled readers of literature actively consider alternative perspectives on and interpretations of a given document, and through dialogic practices come to elaborate their own perspectives and understandings.

In practice, response-based pedagogies encourage the exploration of multiple perspectives and the construction of defensible interpretations. Students engage in constructive critical discourse through classroom discussion and through their writings concerning their personal responses to the literature they read. It is through this dialogic activity that students develop their skills as literate thinkers in terms of both personal meaning making through articulation and the growth in personal understandings that results through articulation. As a result of this emphasis on articulation and exploration, the quality of students' critical and creative thinking as reflected in these discourses becomes the focus of assessment. This is in stark contrast to traditional approaches to literature teaching that tested, and of course valued, retrieval of a single, canonical

meaning.

Potential Roles for Multimedia Technology

In recent years, instructional technology has come to be viewed less as a source of instructional delivery and more as a tool for thinking and an instrument for collaboration. With the ease and plummeting costs of networked multimedia technologies come new possibilities for interface formulas that can support and enhance collaboration. As such, multimedia represents a medium that can be both a combined visual, aural, and textual environment and one through and around which readers of literature can engage in reflective, expressive, and synthetic dialogic activity. Multimedia environments can, for example, be designed to support links among information represented in a variety of media, and so to help users construct meaning based on these relationships (Kozma, 1991). Indeed, hypertext author Michael Joyce has called for hypermedia to be a structure for meanings that do not yet exist (1994). As an environment suited for manipulation and juxtaposition of media elements and corresponding collaborative and constructive discourse, multimedia might therefore seem an ideal medium for supporting response-based approaches to literature teaching and learning.

Due to the absence of response-based features in commercial multimedia products for literature -- in particular support for reflection and discourse among students and teachers -- the project concentrated on creating and assessing the viability of tools that not only provide but encourage learners' opportunities for active participation in discovering, both personally and collaboratively, meanings from experiences with literature. We developed such tools within a multimedia application titled *The Beats* and piloted it with students studying the poetry of the Beat Generation at a local community college.

The Beats

The Beats is an open-ended *ToolBook* program which is centered on the works of Jack Kerouac, Allen Ginsberg, William Burroughs, and Lawrence Ferlinghetti. It includes recorded readings, jazz music, period radio interviews, and databases of biographical and visual information. The application was designed as a tool with which high school and community college students could explore personal and collaborative readings of these texts in a multimedia environment. It contains the kinds of generic tools that potentially support student thinking and

discourse about this literature. These tools are of four types:

- *Personal Notes* allows students to link writings in a personal journal with the literary texts found in *The Beats*. The tool is designed to encourage private reflections whose relationship to the literary piece is immediately and visually apparent. It is an equivalent to a combination of margin notes on print material and a reader's journal.

- *Notes* allows students to drop icons in the margins of a *ToolBook* page to annotate text. They are pop-up scrolling text fields which others can read and respond to. *Notes* is a tool designed to support public discourse about particular elements of literary works. It creates spaces for reflective conversations among students and teachers across time but linked to the original literary text.

- *Links* supports student-created links between any of the pages in *The Beats*. Users drop *Links* icons in the margins of pages, name them, and create a return link on the page to which they point. Clicking on a *Links* icon pops-up a scrolling text field in which the student is asked to explain the relationship they see between the two items they are linking. This scrolling field contains a button that when clicked takes a reader to the item referenced.

- *Media Tools* allows students to link photographs and audio clips to text. By clicking on the photography tool, for example, students can choose from over one hundred photographs of people, places, and things related to the readings, and to place an icon in the margins of a work through which that image can be accessed. The audio tool similarly lets students select audio clips and place icons in the margins of texts they wish to relate these to.

These four tools were specifically developed to support response-based teaching and learning in ways we felt made the best use of the unique characteristics of the computing medium. Specifically, we wished to investigate how they might support discourse among students in ways that were not possible in ordinary classroom conversations. We wished to see whether the tools would

- support the voices of reticent students.
- encourage more reflective conversations.
- free discourse from time constraints.
- provide concrete representations of conversations.

- provide concrete representations of, and so encouragement for, the linking of ideas to specific examples in text.

The Pilot

A class of twenty-six undergraduates in a creative writing course at Hudson Valley Community College (HVCC) participated in the initial piloting of *The Beats*. This site was selected due to the availability of an appropriately equipped computer laboratory on campus, the fact that the subject matter - The Beat Generation - was a key feature in the course syllabus, and the pedagogical orientation and willingness of the instructor. The teacher involved in this study has taught creative writing at HVCC and other colleges for seventeen years. He is an experienced computer user who composes music and literature on his personal computer. The participating class was representative of writing classes taught at the community college level. The students were not aware of the computer aspects of the class prior to enrolling in the course. The class was composed of students from ages 18 - 38 with a variety of computer experiences ranging from novices to experts, approximately equal in males and females, and with a range of preferred learning styles.

Five of the regularly scheduled class sessions took place in the computer laboratory in the HVCC Computing Center, in place of the normal classroom setting. The Computing Center is a modern facility equipped with fifteen desktop personal computers for student use and a computer console for teacher use. The console is situated so that the instructor can face the students working at their individual computers while the images from the instructor's computer monitor are projected onto a 10' x 10' wall-mounted screen at the front of the classroom which is visible to all students. After an initial, whole-class orientation to *The Beats* conducted by the instructor, students were assigned to two groups, each of which would return to the lab on alternating days so that every student would have two full class periods of fifty minutes access to the computers. The computer lab was not accessible to the students outside of class time so each student had equal time and equal access to complete the assignments.

The assignments given to the students for this computer study were of the same type they had completed previously during the semester: read selected works, think about the techniques the author uses, and come to class prepared to discuss your thoughts. The only change from normal procedure was that their thoughts were to be written down and shared with the class via the computer program.

The first assigned task was to read four instructor-selected poems within *The Beats* and to

record in the *Notes* tool their comments regarding the techniques the authors used to create drama in the selections. The students were instructed to compose and enter their comments anonymously. Because of limitations of time available in the computer lab, the students were asked to read two of the selections from their books prior to class even though these poems were accessible within *The Beats* application. Because of the alternating schedule of sessions in the lab, the second group of students was able to access the comments that the first group had made and to respond to them.

Once both halves of the class had completed the assignment, the instructor printed out and distributed to the class the comments all students had entered into *Notes*. These printouts served as the basis of a classroom discussion during a regularly scheduled class.

The second assignment called for students to compose an original poem to input into the ToolBook. Once these poems were entered, students rotated machines to read and respond to their classmates' poems using the *Notes* tool. They again rotated machines to read and respond to one another's comments.

Forms and Functions of On-line and Classroom Discourse

This section discusses the following questions regarding on-line and classroom discourse around literature in general, and, in particular, how these played out in our piloting of *The Beats*:

- What characterizes response-based classroom discourse?
- How do classroom opportunities for discourse differ from on-line opportunities?
- Are these two types of opportunity complementary?
- In what ways?

What characterizes response-based classroom discourse? Recent studies of literature-based discussion in the classroom characterize a distinct break from the traditional mode comprised of delivering a single, sanctioned interpretation via an expert in a lecture format (Burke, 1990; Cox & Many, 1992; Wiseman & Many, 1992; Marshall, 1989). Newer forms of classroom practice see student reactions to and thoughts about the texts they read having taken front seat to the outdated, singular, non-responsive approach of old. Instructors now value the talk students engage in and see themselves as guides and facilitators of a community of active learners. Student discourse is seen as a major vehicle for the development of rich understandings of what

they read, and the development of discourse skills through which this meaning is made in consort with others. It is through discursive processes, in other words, that students of literature become skilled at meaning making and knowing (Langer, 1995).

In practice, classroom discourse around literary works simultaneously explores perceived intended meanings on the part of the writer of a work, students' personal reactions to the work, and interpretations that evolve from collaborative meaning making between and among discussants. Discussions aim toward student understandings of both the complexities of narrative and poetry and the private complexities of their own personal meaning making. The classroom ideally provides a forum for instructor-facilitated conversation that prompts and guides student articulation. Poetry presents a special case in that response can be seen as equally distributed between form and meaning, albeit interconnected. Poetry represents "an opportunity to cross over, to look and see what other people see and think" (Rosen, 1992:159) while simultaneously responding to and celebrating its forms and functions. Be it fiction, film, or poetry, the key to instruction is to bring in the voices of readers and learners of literature so that they can relate their personal and collective crossing overs, or what Rosenblatt terms their "lived through experiences" with the text.

The way in which this freshman-level poetry class was conducted was much in keeping with a response-based philosophy. Believing that students' responses to the assigned poems need to be valued and made central to classroom processes, the instructor worked to 1) model effective modes of literary discourse; 2) facilitate and support students' efforts to become participants in that discourse; and 3) weave students' responses into a coherent, on-task stream. Discourse centered on the forms and functions of poetry, historical contexts, and both aesthetic and critical response to the works. The instructor consistently melded his agenda regarding the former with student involvement in the latter. The resulting classroom dynamic was one of instructor-led exploration with a tacit invitation to students to contribute their thoughts and ideas. With twenty-six students, opportunities to voice contributions to class discussion were, of course, limited. Consequently, three more vocal students tended to dominate the floor.

How do classroom opportunities for discourse differ from on-line opportunities? Where there is broad consensus that classroom processes that involve students in reflective and interpretive talk are aligned with the goals of linguistic and literary development, the reality of time constraints - limits on opportunities for all students to have the floor - often means that many voices are not heard. The fast-paced social dynamic of the classroom discussion may exclude those who are reticent and less skilled at making their thoughts known in a public forum. A comprehensive study of classroom literature discussions, for example, revealed that students

recognize certain maxims of conversational appropriateness in the classroom discussion situation. Students reported that it was not enough to simply express their feelings and ideas; these had to be blended into the course of discussion and opportunities within it at an appropriate moment in time (Marshall, 1989). The added pressure to maintain relevancy, be concise, and make an immediate contribution to the work one's peers are engaged in is challenging for students. If, for example, a student is reflecting on and composing a contribution to a particular thread in the discourse stream and that thread is dropped, that student may abandon the attempt at constructing and inserting a response. It can be argued that the reflective act of constructing a plausible contribution during class discussion is a valued activity. However, internal discourse does not enjoy the give and take available through community discourse.

Given the ever-present interpretive agenda of the instructor who must simultaneously see to equity, to an agenda, and to the clock, in tandem with individual students' needs for time and opportunity to insert their voice in the discourse stream, the classroom can be viewed as a potentially problematic environment for those students who need more time and discourse space than others to make their voices heard. Whereas early research comparing literature-based oral discourse with written forms found that student responses tended to be longer in the oral mode, text responses tend to be comprised of more cognitively and linguistically complex and interpretive discourse than the oral (e.g., Applebee, 1978; Langer & Applebee, 1987; Wiseman & Many, 1992). In this respect, on-line opportunities to comment at length and reflectively on texts under study, while not usurping the role of classroom processes, can extend opportunities for active participation by all students.

In response to questions concerning their thoughts and experiences using the ToolBook application as part of their coursework, and in their actual on-line responses, it is clear that this group of students was equipped with the conceptual and linguistic skills needed to articulate their reactions to literary works. On-line responses to both the poetry of The Beat Generation and to classmates' poetry reflect a mode of discourse that is personal, reflective, and far more focused and extensive than would be conceivable in fast-paced, multi-participant conversation. On-line work represented an opportunity for self expression that is not always feasible in the sociocultural context of the literature classroom.

Students' responses are, interestingly, consistent in approach. We found a distinct pattern where students move from initially responding to the forms of the poems, as had been modeled by the instructor, to very personal responses relating their perceived meaning of the works to their own lives. For the assignment, the instructor orally modeled the linking of form and meaning, something he also regularly did during class discussions. In their on-line responses, students not only follow his model but go further in personalizing links between form and

meaning (see Table 1).

Are these two types of opportunity complementary? Where in-class discussion affords opportunity for the growth of ideas through immediate interchange, on-line discourse allows expanded opportunity to make one's views public. It represents an opportunity for participation for all students, not just those who are verbally talented. Whereas during regular class discussions of the same selections only a handful of students ever actively participated, every student wrote responses to each of the selections while many also responded to and built upon comments made by their fellow students thus creating on-line dialog concerning their responses. The opportunity provided by the on-line communication to encourage participation by more reticent students is clearly evidenced by the fact that when directed to respond anonymously, students' responses averaged twice as long as when they were directed to sign their names to their contributions.

Having a written record of responses also serves a valuable, compatible function in the response-based classroom in that it can be used by instructors as a text to recognize and draw from a wider range of student responses than occurs during a regular class discussion. This instructor skillfully used the response logs as the basis of more in-depth discussion. He continually told students how delighted he was with the quality and quantity of their responses as well as with the variety of opinions that were not normally expressed in his regular classroom sessions.

An advantage of classroom discourse in contrast to on-line forms of communication that was noted by the pilot's observer was that in the classroom the instructor's agenda can serve to guide greater depth of inquiry - to keep students on track while moving through what he deems critical considerations in understanding literary works. He would, for example, draw students' attention to diachronic historical connections and keep them on that track through a range of student provided examples as well as examples and linkages he provided. In their on-line assignments, students were fairly consistent in sticking to the instructor's agenda of noting form and linking it to perceived meaning within the works. Granted his voice was not continually present to guide task focus, yet students demonstrated that they could, given the time and space to reflect and compose, stay with a given agenda while exploring their own and others' reactions.

Mastering the discourse conventions that are practiced in literary talk is part of the classroom dynamic. A skilled instructor will model, scaffold, and support the development of these forms of communication and thus lead students to membership in a community of literary thinkers and understanders of both literary text and the value of those discourse processes. In the case of this pilot, the instructor's style can be characterized as one that consistently encouraged this kind of

POEM	FROM FORM...	TO LIVED THROUGH EXPERIENCE
Ginsberg's *America*	Ginsberg uses a lot of rhetorical questions in this poem. He uses these questions to make his incision into America. I thought that his questions were rhetorical and his angry tone throughout the poem gave me that impression. I agree with liking the repeating of America. I feel it adds to the poem. I really like the line "America I have given you all and now I am nothing.	We know each line is another thrust at the what or the why of America, another stab to get inside, drag it all out. He undressed America and in her nakedness he said, put some clothes on before someone sees you. The poem also had an air of intoxication, like someone who had been drinking and their anger was coming out. Like a vet. Flashback type of thing. Also maybe hearing it made me feel that it was meant to be felt that the person was drinking. It reminds me of use paying taxes.
Ferlinghetti's *I am Waiting*	I feel the continuous use of "I am waiting" within the lines became too repetitious... I disagree with your feeling on repeating the I am waiting. I liked it. I get the point that this person is waiting for things that may or may not happen. Although I find the line breaks and repetition useful in understanding the poem, I also like the chanting like in America by Ginsberg, it really makes the poem flow	and I felt myself becoming annoyed with reading it over and over. I like how he wanted to relive things that were out of touch. I felt that he was trying to convey that he is waiting for all the things that are supposed to make this country a "Dream" all the good that is in all our symbols that we have. I found it boring. I think the author should stop "waiting" and start "doing". and kept me wanting to read more to find out what else he could be waiting for.
Student Poem 1	Very vivid imagery. I like the use of repetition in the first line of what I suppose would be the title. The images of pain here are very colorful.	I do admit that the maggot part did displace me slightly. I think the pain isn't just a physical pain. It seems to be a mental pair or heartbreak. But in a way it seems that the pain is a pleasure in itself.
Student Poem 2	Your description was very vivid. ...it all comes back to your rhythm with the pattern	It leaves me imagining that place, that feeling. The images change quick, the timelessness of what seems infinite to a moment of near-lust to a battlefield of an easygoing drink and a breeze - I like the journey.
Student Poem 3	I appreciated the familiar imagery used in your poem. I like the way you related the schoolbus to the aspects of the whole school day.	It is easy to relate to and I thought it was strong in that it uncovered almost forgotten emotions of every bus rider. I can totally relate to the feelings you expressed in this poem.

Table 1: Sample On-line Responses

activity. Student on-line responses are evidence that developing discourse can be accommodated and, indeed, expanded given the opportunity to participate in a multimedia forum.

In what ways? Understandings from literature are fluid and evolving. Many have argued that this evolution takes place in overlapping progressive stages (e.g., Hansson, 1990; Langer, 1991). On the first reading of a literary text, for example, many readers experience a synthetic reaction that, as such, is not fully amenable to analysis and articulation. This is a holistic response that relates to personal, inner realities whose intrinsic value lies in its emotional, not critical, qualities. It is a response that clearly belies understanding; how that understanding progresses is determined in part by internal dialog and in part by dialogic processes with others. Response-based practice typically accommodates these tentative, preliminary understandings by asking students to reflect, often by writing in a journal, on these initial experiences. The private discourse space of the journal is a place where students can converse with their own personal experiences and through this internal conversation come to articulate defensible interpretations that can be shared in a public discourse. In this pilot, students were provided a space in which to do this same kind of reflection. These were, however, public in that classmates could read and respond to these reflections on-line, and, at a later time, discuss printouts of these texts in class. Both students and the instructor noted that this merger of on-line and classroom discourse enriched their experiences as a community of readers. As such, the two dialogic formats - classroom and in the multimedia environment - were, in this pilot, complementary activities.

Viability

The pilot set out to test the viability of on-line response tools in a multimedia environment. To these ends, each on-line and corresponding off-line session on The Beat Poets was observed. Students and their instructor were interviewed and end-of-pilot questionnaires were completed by seventeen of the twenty-six participating students. Each of the anticipated outcomes as previously outlined is discussed below as it bore out in this brief pilot.

1. Multimedia tools can support the voices of reticent students.

Every student entered written comments or responded to almost every assigned work (a total of seventy-one responses survived system bugs). In in-class discussions of the same works, only

eight of the twenty-six students participated, with three students dominating the majority of the conversation. While on-line, all students had an opportunity to give and receive peer comments during class periods in the computer laboratory. In contrast, only one student's poem was discussed in the regular classroom with few students actually participating.

The instructor reported noting that students who wouldn't regularly speak in class did participate on-line. However, he also noted that the more reticent students made briefer contributions than those he characterized as "longwinded" in class. These students tended to be as longwinded on-line as they were in off-line class discussions. The instructor qualified this observation by pointing out that time constraints in this pilot may have hindered students from developing their ideas and stating them as eloquently as they might have given more time.

The voices of reticent students, he states, appeared to have been supported by the on-line tools in that those who were less inclined to make what he described as "intelligent contributions" to class discussions wrote more freely than they would otherwise. He described the quieter students' on-line responses as more "free-wheeling" than the "intellectual" students' and that this tended to "spice things up" in the on-line exchanges. Their comments "made you want to read what they said in relation to the poems and others' responses."

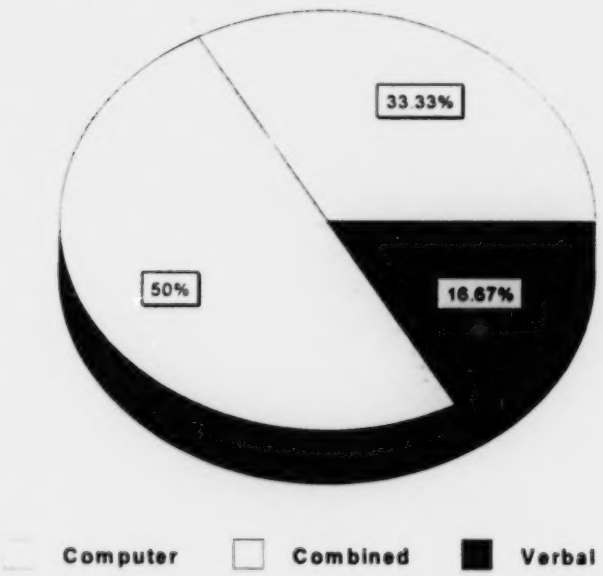
The three students who stated outright that they did not participate in regular class discussion expressed preference for the on-line mode of literature-based dialog. The remainder stated a preference for a mixture of both modes of response (see Figure 1).

2. Multimedia tools can encourage more reflective conversations.

The level of discourse via computer was not as critical and deep as it was for those who consistently participated in regular class discussions (a small minority). The instructor's questions, responses, and leadership in classroom discussions explored at greater depth the poets' techniques and made more connections between the Beat authors and other contemporary writers. Student's on-line responses tended to express initial emotional reactions, not this kind of depth of inquiry. Again, having had more time on the system, students may have gone further in developing their ideas.

The instructor felt that, for the most part, student exchanges were reflective. At one point he said to the class "The responses you made in the ToolBook are fantastic. You don't talk like this in

Figure 1: Student Preference for Type of Instruction



class. Please talk more in class like this." He did add again, however, that, had there been more time for students to work on-line, student reflection would have been even more extensive. Students continually asked for access to the ToolBook outside of the scheduled sessions; this, however, was not a logistical possibility. Students expressed an appreciation for the anonymity (they signed pseudonyms to their on-line work) the on-line sessions had provided. They pointed to the fact that they were "more honest" in expressing their thoughts and ideas in this way and that the experience was a "freeing" one. They enjoyed being able to communicate with one another directly, and being privy to others' viewpoints and perspectives. Some felt the program helped them to write more reflectively in that they could "write our first thoughts, read the poem again, and go back and see things we didn't see before."

3. Multimedia tools can free discourse from time constraints.

In this instance, the program did not free discourse from time constraints: it did, however, change the nature of the class and the kinds of constraints the students felt. In the regular classroom, students were allowed to be passive. With the computers, all students were forced to be active. Due to the nature of the assignments and their limited access to the system, however they appeared to be "rushed" while working on-line.

The instructor felt that the program opens up opportunity for extended discourse. This brief pilot, however, could not affirm this due to such limited contact with the program on the part of participants.

Students consistently lamented the limited amount of time they had been able to get on-line with *The Beats*. Many stated they were unable to finish what they had begun.

4. Multimedia tools can provide concrete representations of conversations.

Looking at both on-line and off-line processes, there is some indication that being able to *see* other students' responses created a place where they were able to learn from each other and not just the teacher.

The instructor observed that, indeed, students' conversations became concrete, tangible text that could be reviewed and reflected on. This was an aspect of the pilot he felt changed regular classroom processes. Students could review printouts of their on-line conversations and expand on these in class.

Students stated that it was helpful to *see* what other students were thinking and that this opportunity opened up new perspectives for them.

5. Multimedia tools can provide concrete representations of, and so encouragement for, the linking of ideas to specific examples in text.

Having comments immediately linked to the poems appeared to make connections more tangible for students. It is unfortunate that in this round students were not assigned to use the other media linking tools as they seemed interested in the visual and aural aspects of the program.

Where students juxtaposed their responses on the text in the ToolBook, the instructor felt important connections were made in students' heads. His assignments for this pilot did not call for use of the other media linking tools, but he would like to readjust his assignments in the future to take advantage of this feature.

Students stated that they liked being able to write "in the margins" because it made their thoughts "right there," "fresh" along with the text they were responding to.

Discussion

In theory, multimedia represents an environment that is potentially supportive of response-based practice: it is a place for students to explore and make meaning about what they read in a variety of formats, and allows for the kind of collaborative exchanges valued by response-based practices. In an earlier study of multimedia use in response-based elementary language arts activities, however, we found that these kinds of multimedia-based dialogic activity do not happen independent of the social/pedagogical structures in which they are located (Meskill & Swan, 1996). We found that the sociophysical and curricular structures in which response-based multimedia tools are used determine the extent to which students engage in the kinds of multimedia and dialogic activity the technologies are designed to promote and support. In other words, the mere presence and potential for this kind of activity did not guarantee that the technology would be used as such. It was, rather, the ways in which the technology was integrated into the classroom community that influenced its use. In the case of *The Beats*, the multimedia application was thoughtfully integrated into an existing curricular stream by the instructor. Specific assignments for the software, and activities around it were at his discretion. Through his integration style and resulting activities with the application, the instructor was able to 1) promote use of the multimedia as a tool for both off-line and on-line reflection and collaboration; and 2) in turn make that use a valued component of his existing system of teaching and learning. Without this committed valuing of the activity, multimedia gets cast into an add-on, rather than an integral, entity.

Preliminary data from this pilot reveals that on-line collaborations in a literature-based multimedia environment are not only viable, but potentially powerful. Observations also suggest that the nature of these on-line responses and collaborations are qualitatively and quantitatively unique from in-class discussions. Moreover, the nature of off-line activity (classroom discourse) was observed to undergo change in that on-line student responses and reflections became a springboard for proceeding more deeply into students' understandings of the Beat poetry. The instructor for this course expressed his understanding that multimedia-based response creates opportunities for activities and kinds of instruction that are not possible in traditional instruction. He recognized that he would need to alter his mindset when utilizing such a system in teaching. He wishes to continue to design and redesign assignments to take full advantage of the multimedia and all of the on-line tools. Another adjustment, he states, is in calculating his expectations of what students can do in a given period of time and to make assignments accordingly. Study of this context and the instructor's adjustments to working with this form of instructional tool will be continued.

Conclusion

As schools see students coming to the learning process equipped with skills and predispositions for electronic communications, the issues of these skills and predispositions must be addressed. For example, the assumption that ways of knowing, using, and understanding text are a consequence of school-based literacy rather than originating from direct experiences with electronic text and communications must be reconsidered. This is not to say that new forms of language and awareness are a direct result of communications technology. As Computer Mediated Communication (CmC) scholar, Denise Murray states, "The relationship among language, social life and technology is organic": (Murray, 1995; p. 29). This is especially relevant now as content areas and curricula merge. Electronic information and communications are important forms of meaning making that need to be integrated into a necessarily broadening view of literature study.

There is also a need to design and test hypermedia applications that are based on pedagogical theory (Jacobson, 1994). Moreover, in the short history of hypermedia in education, the need to examine the interaction of specific on-line pedagogies within the instructional contexts in which they are situated has quickly become apparent (Chapelle et al., 1996; Meskill & Shea, 1994; Meskill & Swan, 1996). This pilot attempt at integrating a set of multimedia tools supportive of response-based practice in literature instruction indicates that the medium can serve as a tool through which learners can become enculturated into what Alan Purves calls an interpretive community of readers and thinkers (Purves, 1990). Future long-term integration trials will further explore the extent to which this on-line collaboration and exploration in a multimedia environment can serve this end.

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